

## CLAIMS

We claim:

1. A method for detecting the effectiveness of antidepressant therapy in a depressed individual comprising determining whether there has been a modification of the association of  $G_{sa}$  with components of the plasma membrane or cytoskeleton of cells from peripheral tissues of the depressed individual.

2. The method of claim 1 wherein the modification is enhanced coupling between  $G_{sa}$  and adenylyl cyclase.

3. The method of claim 1 wherein the modification is a redistribution of  $G_{sa}$  from a strongly hydrophobic region of the plasma membrane to a less hydrophobic membrane domain.

4. The method of claim 1 where the modification is a redistribution of  $G_{sa}$  from cell processes and process tips to the cell body.

5. The method of claim 1 wherein the peripheral tissues are blood cells

6. The method of claim 5 wherein the blood cells are erythrocytes.

7. The method of claim 5 wherein the blood cells are leukocytes.

8. The method of claim 5 wherein the blood cells are platelets.

9. The method of claim 1 wherein the peripheral tissues are skin fibroblasts.

10. A method for detecting the effectiveness of antidepressant therapy in a depressed individual, the method comprising

(a) collecting cells from peripheral tissues from the depressed individual;  
and

(b) determining whether there has been a modification of the association of  $G_{sa}$  with components of the plasma membrane or cytoskeleton of the cells collected in step (a).

5           11. The method of claim 10 wherein the modification is enhanced coupling between  $G_{sa}$  and adenylyl cyclase.

10           12. The method of claim 10 wherein the modification is a redistribution of  $G_{sa}$  from a strongly hydrophobic region of the plasma membrane to a less hydrophobic membrane domain.

13. The method of claim 10 where the modification is a redistribution of  $G_{sa}$  from cell processes and process tips to the cell body.

15           14. The method of claim 10 wherein the peripheral tissues are blood cells.

15 The method of claim 14 wherein the blood cells are erythrocytes.

16 The method of claim 14 wherein the blood cells are leukocytes.

20           17. The method of claim 14 wherein the blood cells are platelets.

18. The method of claim 10 wherein the peripheral tissues are skin fibroblasts.

25           19. A method for assaying for an agent or agents having antidepressant activity comprising the step of:

(a) contacting said agent or agents with cultured cells expressing Type VI adenylyl cyclase;

30           (b) determining whether there has been a modification of the association of  $G_{sa}$  with components of the plasma membrane or cytoskeleton of the cells in step (a) via comparison to a control cell culture lacking said agent or agents;

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(c) identifying agents having antidepressant activity from a difference in the modification of the association of  $G_{sa}$  with components of the plasma membrane or cytoskeleton of the cells in step (a), wherein an agent or agents having antidepressant activity increases the modification of the association of  $G_{sa}$  with components of the plasma membrane or cytoskeleton of the cells in step (a).

20. The method of claim 19 wherein the modification is enhanced coupling between  $G_{sa}$  and adenylyl cyclase.

21. The method of claim 19 wherein the modification is a redistribution of  $G_{sa}$  from a strongly hydrophobic region of the plasma membrane to a less hydrophobic membrane domain.

22. The method of claim 19 where the modification is a redistribution of  $G_{sa}$  from cell processes and process tips to the cell body.

23. The method of claim 19 wherein the peripheral tissues are blood cells.

24. The method of claim 23 wherein the blood cells are erythrocytes.

25. The method of claim 23 wherein the blood cells are leukocytes.

26. The method of claim 23 wherein the blood cells are platelets.

27. The method of claim 19 wherein the peripheral tissues are skin fibroblasts.

28. The method of claim 19 wherein the cultured cells are of neuronal or glial origin.

29. The method of claim 19 wherein the cultured cells are cultured epithelial cells expressing Type VI adenylyl cyclase.

30. A method for assaying for an agent or agents having the ability to modify the association of  $G_{sa}$  with components of the plasma membrane or cytoskeleton of cells comprising the step of:

5 (a) contacting said agent or agents with cultured cells expressing Type VI adenylyl cyclase;

(b) determining whether there has been a modification of the association of  $G_{sa}$  with components of the plasma membrane or cytoskeleton of the cells in step (a) via comparison to a control cell culture lacking said agent or agents;

10 (c) identifying agents having antidepressant activity from a difference in the modification of the association of  $G_{sa}$  with components of the plasma membrane or cytoskeleton of the cells in step (a), wherein an agent or agents having antidepressant activity increases the modification of the association of  $G_{sa}$  with components of the plasma membrane or cytoskeleton of the cells in step (a).

15 31. The method of claim 30 wherein the modification is enhanced coupling between  $G_{sa}$  and adenylyl cyclase.

20 32. The method of claim 30 wherein the modification is a redistribution of  $G_{sa}$  from a strongly hydrophobic region of the plasma membrane to a less hydrophobic membrane domain.

33. The method of claim 30 where the modification is a redistribution of  $G_{sa}$  from cell processes and process tips to the cell body.

25 34. The method of claim 30 wherein the peripheral tissues are blood cells.

35. The method of claim 34 wherein the blood cells are erythrocytes.

36. The method of claim 34 wherein the blood cells are leukocytes.

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37. The method of claim 34 wherein the blood cells are platelets.

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38. The method of claim 30 wherein the peripheral tissues are skin fibroblasts.

39. The method of claim 30 wherein the cultured cells are of neuronal or glial origin.

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40. The method of claim 30 wherein the cultured cells are cultured epithelial cells expressing Type VI adenylyl cyclase.

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